




# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,099	09/29/2003	Masato Nagawa	Fukuyama-3 (2003P004062)	2423
26479	7590	10/20/2004	EXAMINER	
STRAUB & POKOTYLO 620 TINTON AVENUE BLDG. B, 2ND FLOOR TINTON FALLS, NJ 07724			FLANDRO, RYAN M	
			ART UNIT	PAPER NUMBER
			3679	

DATE MAILED: 10/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/674,099	Applicant(s) NAGAWA ET AL. 	
	Examiner Ryan M Flandro	Art Unit 3679	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 18-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 18-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2003 and 22 July 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

#### *Claim Objections*

2. Claim 2 is objected to because of the following informalities: the phrase “are have been” in line 13 of amended claim 2 is grammatically improper. Appropriate correction is required.

#### *Claim Rejections - 35 USC § 102*

3. Claims 1, 7, 9, 13-15 and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by GB 1,045,163 (hereinafter “the ‘163 patent”).

- a. Claim 1. The ‘163 patent clearly shows and discloses a loosening-proof nut **1** comprising a nut body having a central female thread with nominal diameter *d*, the nut body also having more than two slits **16-18** (see figures 5 and 6) formed such as to be symmetrical with respect to the axis of the nut **1**, the more than two slits **16-18** radially penetrate the female thread from the outer periphery of the nut **1** and are located on an upper side of an axial center position of the nut body, the slits **16-18** defining push parts **22-24** which have been bent downward resulting in plastic deformation (see figures 5 and 6; pages 2 and 3).

- b. Claims 7 and 9. The ‘163 patent, as applied above and as substantially shown in figures 9 and 10, shows and discloses each and every limitation set forth in claim 7, most notably the two pairs of slits **33-36** recited therein (see figures 9 and 10; pages 2-3).

- c. Claim 13. The '163 patent shows the first and second axial parts having substantially the same shape (see figures 9 and 10).
  - d. Claim 14. The '163 patent further shows and discloses the female thread part formation surface direction of the second axial part is set to be outward from the axis of the nut 1 (see figures 9 and 10; pages 2-3).
  - e. Claim 15. The '163 patent further shows and discloses the at least two pairs of slits 33-36 are formed at predetermined positions uniformly subtending the circumference (see figures 9 and 10; pages 2-3).
  - f. Claim 18. The '163 patent further shows and discloses the more than two slits 16-18 are three slits 16,17,18, spaced 120 degrees apart, and located at an axial position on the upper side of the axial center position of the nut body (see figures 5 and 6; pages 1-3).
  - g. Claim 19. The '163 patent further shows and discloses that the more than two slits 33-36 comprise multiple pairs of slits 33-36 (see figures 9 and 10; pages 2-3).
  - h. Claim 20. The '163 patent further shows and discloses that the multiple pairs of slits 33-36 are located at an axial position on the upper side of the axial center position of the nut body (see figures 9 and 10; pages 2-3).
4. Claim 25 is rejected under 35 U.S.C. 102(b) as being anticipated by GB 0551534 (hereinafter "the '534 patent"). The '534 patent shows and discloses a loosening-proof nut 2 comprising a nut body having a central female thread with nominal diameter d, the nut body having a hexagon outer shape defining six faces, the nut body also having two slits 1, a first and second slit, formed such as to be symmetrical with respect to the axis of the nut 2, the two slits 1

Art Unit: 3679

radially penetrate the female thread from the outer periphery of the nut 2, wherein each of the slits 1 are located at an axial position on an upper side of an axial center position of the nut body, wherein each of the slits 1 cuts through two full faces and two partial faces of the nut body, and wherein the slits 1 define push parts 3, which have been bent downward resulting in plastic deformation (see figure 3), the push parts 3 consist of a first and second push part defined in an upper part of the nut body by the first and second slit 1 (see figures 1-3; page 2 line 101 – page 3 line 32).

5. Claims 2-6, 8, 10, 11, 22-24 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by King et al (US 2,391,712) (King).

a. Claim 2. King shows and discloses a loosening-proof nut 1 comprising a nut body having a central female thread with nominal diameter d, the nut body having an upper portion 1a and a lower portion 1, wherein the maximum outer diameter of the upper portion 1a is less than the minimum outer diameter of the lower portion 1, the nut body also having two slits 2 formed such as to be symmetrical with respect to the axis of the nut 1, the more than two slits 2 radially penetrate the female thread from the outer periphery of the nut 1 and are located in the upper portion 1a of the nut body and are located at an axial position on an upper side of an axial center position of the nut body, the slits 2 defining push parts which [are?] have been bent downward resulting in plastic deformation, the slits 2 consisting of a first and second slit 2 symmetrical with respect to the nut axis, the push parts consisting of first and second push parts defined in the upper portion 1a of the nut body by the first and second slit 2 (see figures 1-4; columns 1-2).

- b. Claims 3-6 and 21. The recitations in claims 3-6 and 21 are substantially shown and disclosed by King. The recited ratios are clearly within the disclosure of King, and in any event, Applicant's own disclosure states that the given numerical ratios may be varied without departing from the scope of the invention (see page 17, lines 20-23 of the instant specification).
  - c. Claims 8, 10 and 11. King, as substantially applied to claim 2 above, shows and discloses each and every limitation recited in claims 8, 10 and 11 (see figures 1-4, esp. figure 2; columns 1-2).
  - d. Claims 22 and 23. King further shows and discloses the lower portion 1 of the nut body is a hexagon shape to accept a tool for tightening and loosening (see figures 1-4; columns 1-2).
  - e. Claim 24. King further shows and discloses the slits being cut at 90 degrees to the axis of the nut, which can be considered slanted because the claim does not recite how or what the angle is slanted with respect to.
  - f. Claim 26. King further meets the limitations set forth in claim 26 since there is a difference between the gap widths at the outer and inner portions of each slit 2 (see figures 1-4; columns 1-2).
6. Claims 2-6, 8, 10, 11, 21-24 and 26 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Butler (US 2,487,219). Butler clearly shows and discloses each limitation recited in claims 2-6, 8, 10, 11, 21-24 and 26. As to the recited ratios in the aforementioned claims, they are believed to clearly be within the disclosure of Butler, and in any event, Applicant's own

Art Unit: 3679

disclosure states that the given numerical ratios may be varied without departing from the scope of the invention (see page 17, lines 20-23 of the instant specification).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 12 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the '163 patent, as applied to claim 7 above, further in view of King. The '163 patent shows and discloses each limitation in claim 7, but lacks disclosure that the outer periphery of the second axial part is circular in shape. King teaches a second axial part 1a of a nut body which contains slits 2 and which has a smaller maximum diameter than a first axial part 1 of the nut body and is

Art Unit: 3679

circular in shape, presumably so that the tool tightening the nut cannot perform tightening at the part of the nut that will be deforming for purposes of locking the nut (see figures 1-4). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the '163 patent such that the outer periphery of the second axial part of the nut is circular in shape and smaller in diameter than the first axial part for the reasons taught by King.

### *Response to Arguments*

8. Applicant's arguments with respect to claims 1-16 and 18-26 have been considered but are moot in view of the new ground(s) of rejection.

### *Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to further show the state of the art with respect to nut locks:

U.S. Patent 2,213,353 to Whitcombe (see figures 1-7; shows and discloses circular upper portion of nut having slits therein)

U.S. Patent 2,304,310 to Luce (see figures 3 and 4; shows and discloses circular upper portion of nut having slits therein)

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan M Flandro whose telephone number is (703) 305-6952. The examiner can normally be reached on 9:00am- 6:00pm Mon-Fri.



Art Unit: 3679

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola can be reached on (703) 308-2686. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RMF  
October 6, 2004

A handwritten signature in cursive script that reads "Daniel P. Stodola".

DANIEL P. STODOLA  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3600